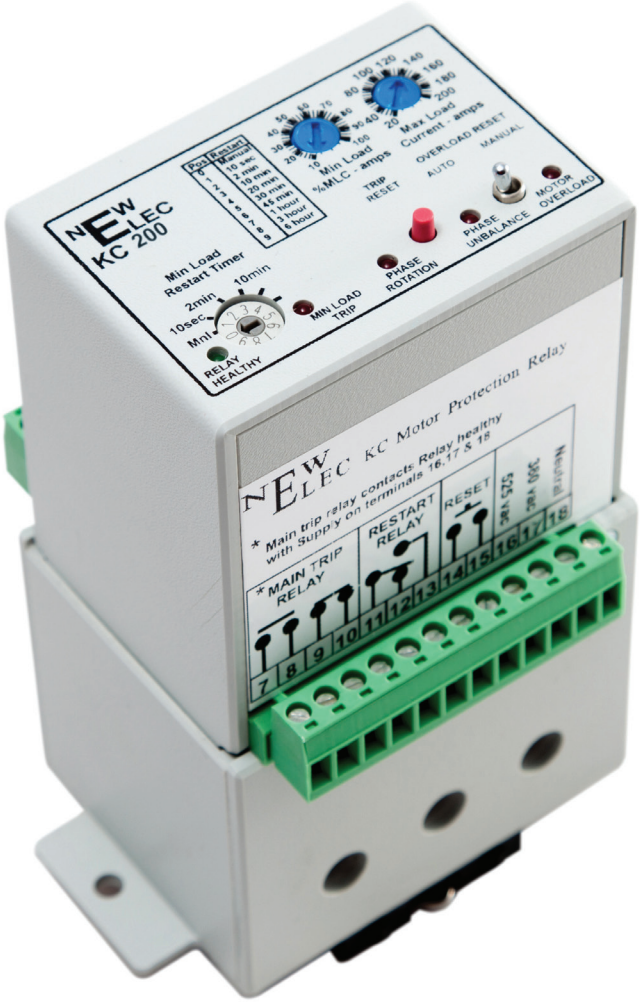
NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY

KC Motor Protection Relay...



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ISO 9001:2008
ISOQAR QUALITY ASSURED ISO 9001
UKAS QUALITY MANAGEMENT 026
Certificate Number : 8707QMS001

Physical Address: 298 Soutter Street, Pretoria West
Tel: 083 454 6949, +27 12 327 1729 Fax: +27 (0)12 327 1733 Toll Assist: 0860 10 30 41
www.newelec.co.za sales@newelec.co.za

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GPS Coordinates:
-25.752984, 28.162957

Innovative solutions from South Africa's Leading Motor Protection Specialists

About NewElec

NewElec designs and manufactures a wide range of superior electronic motor protection relays for both local and International markets. NewElec's goal, for the past 38 years, has been to exceed the expectations of every client by OFFERING quality products, outstanding customer service and greater value, thus optimizing system functionality and improved operational efficiency.

As experts in motor protection, NewElec is involved in every stage of the client's selection of the required protection relay offering ongoing functional and technical support. Our R&D division is continually designing the most up to date motor protection products to meet customer requirements.

NewElec's electronic motor protection relays can be found in refineries, mining, steel, petrochemical, pulp and paper, sugar mills, agriculture and material handling industries to name a few, both locally and internationally. The NewElec product range includes software programmable LV motor protection relays for process control applications, protection relays for LV and MV motors, relays for pump motor protection, as well as earth leakage protection relays.

NewElec is continually expanding and has recently installed a manufacturing division for its relay housings. This ensures that the final product meets NewElec's precise requirements.

With headquarters in Pretoria West, Gauteng, South Africa, NewElec was established in May 1978 and is accredited with ISO 9002.

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Why was it designed?

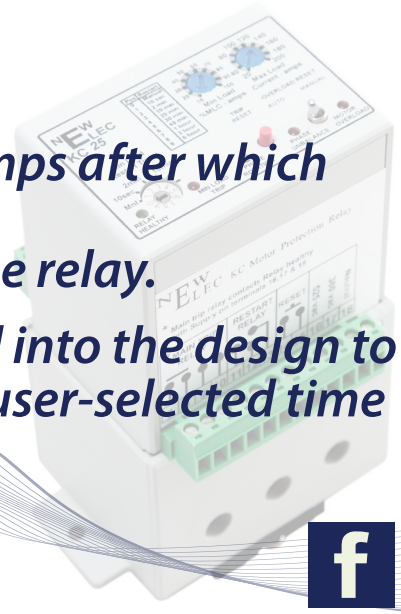
To provide a protection and control relay in motor pumping applications that would traditionally have used a combination of thermal bimetal, undercurrent and restart timers with a small footprint

This microprocessor based thermal overload relay designed to IEC 60255-8 provides superior:

- ***Overload protection for cyclic and stable loads***
- ***Unbalance current and single phasing protection***
- ***Minimum load (undercurrent) protection***
- ***Locked rotor protection***
- ***Running stall (jam) protection***
- ***Phase rotation, overvoltage and undervoltage protection***

Single feed through primary 8 mm aperture covers range 1 to 25 amps after which secondary winding of interposing current transformer pass through the relay.

A pulsed relay output coupled to a restart timer has been incorporated into the design to enable the auto restart of the motor after a minimum load trip and a user-selected time delay has expired.



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Feature Highlights

- *Overload protection cyclic and sustained thermal curve Class 15 Cold – 5 Hot*
- *Thermal memory as per IEC 60255-8 with preloading*
- *Thermal memory decay caters for running and standstill conditions*
- *Auto / Manual reset selection (Auto change to manual after 3 trips in 1 hour)*
- *Locked rotor protection*
- *Jam or running stall protection*
- *Unbalance current single phasing protection (30%)*
- *Underload protection with user-adjustable trip threshold (10% -100% Ie)*
- *User-selectable manual / auto reset with restart timer on minimum load trip*
- *Pulsed restart contact output with auto reset on minimum load*
- *Phase rotation protection*
- *Over and undervoltage protection*
- *Fail-safe trip relay configuration indicates relay healthy*
- *Latched LED trip diagnosis LEDs*

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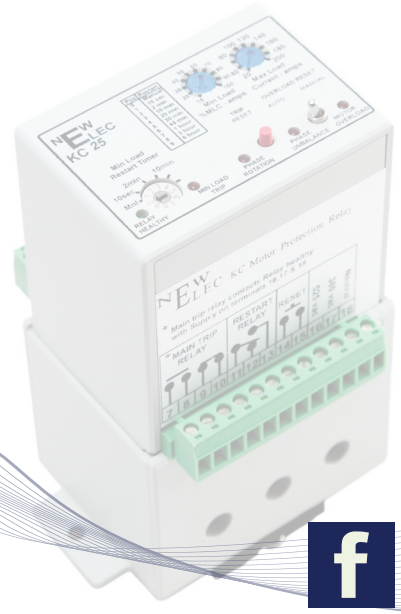
Benefits

- *Accurate overload protection during any phase of operation*
- *Unbalance current protection*
- *Phase loss single-phasing protection*
- *Phase rotation, overvoltage, undervoltage*
- *Running Stall*
- *Descriptive fault / level monitoring indication LEDs*
- *User-friendly calibration settings*
- *Compact design. Footprint (100 x 50 mm)*
- *Requires additional CTs for loads > 25 amps.*
- *Current range from 0,1 to 200 amps in 7 models*



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Typical Applications

Pump motors requiring minimum load protection

Pump motor impeller efficiency with minimum load

Sump pump applications automation with ball valves used as final limit

General motor protection requiring small footprint and Hot start < 5sec

Compressor motors with cyclic loading

Minimum load protection for V belt breakage trip

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Specifications

Input Converter

Class : Class 1
Rating : 0,1VA
Frequency Response : 40 to 66Hz

Overload Trip Delay Curves

Cold

$$T\,Trip = 15\,(35{,}49)\,Ln\left[\frac{(I/Ie)^2 - (Ip/Ie)2}{((I/Ie)^2 - 1)}\right]$$

Hot

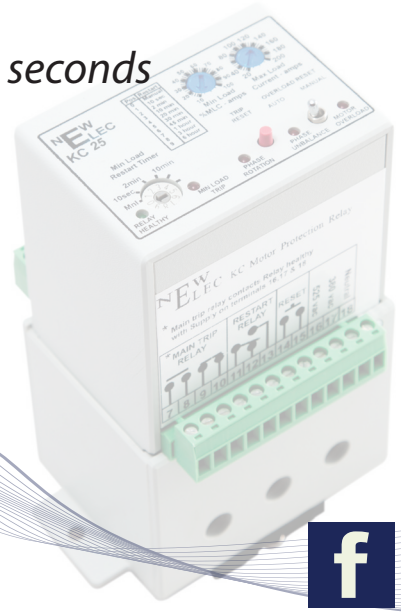
$$T\,Trip = 5\,(35{,}49)\,Ln\left[\frac{(I/Ie)^2 - (Ip/Ie)2}{((I/Ie)^2 - 1)}\right]$$

Accuracy

: ± 5% 1,2 x Ie to 6 x Ie
: ± 10% 1,01 x Ie to 1,2 x Ie

Underload Detection

Range : 10 to 100% of Maximum Load Dial
Trip Delay : 1 to 10 seconds



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Specifications Contd.

Fault Indication

Operation	: Latch on trip
Resetting Fault Indication	: Latch

Environmental Specifications

Reference Standards IEC 255

Isolation N/O contact

1kV for 1 minute to IEC 255-5 C

Impulse Withstand

5kV to IEC 255-4 EIII

Isolation Separate Contacts

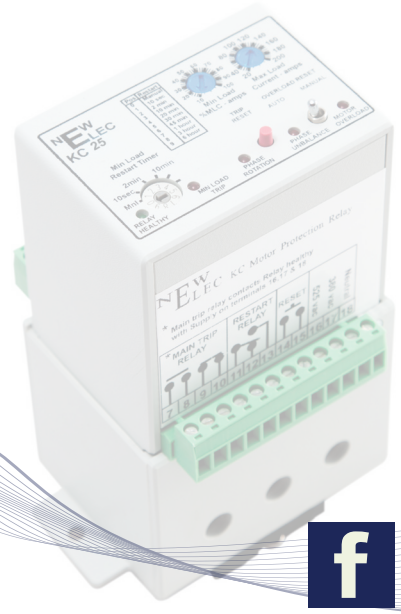
1kV for 1 minute to IEC 255-5 C

High Frequency

IEC 255-4 C III

Maximum Load Current Setting

Level Setting Accuracy	: ± 2%
Linearity	: ± 2%
Repeatability	: ± 1%
Detection Level	: ± 2%
Calibration	: Amps



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Specifications Contd.

Overload Thermal Lock-out Time to Recover 33% Capacity

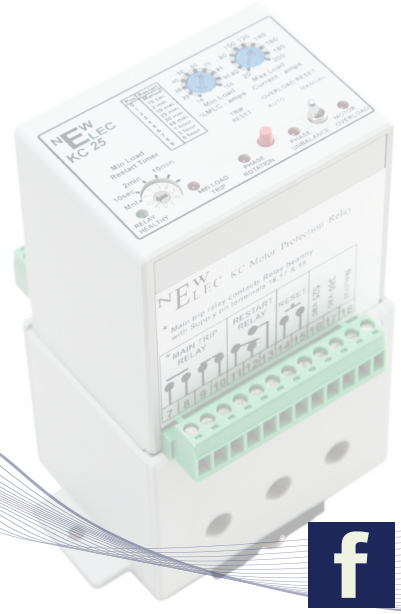
Example shown for a 15 sec curve selection	: T reset = Curve [2.33 (35,49 x 2) 15 log (100/70)] - Motor Running

Main Trip Relay

	: 5 Amps 220V A.C.
Configuration	: 1 n/o + 1 n/c
Terminals	: n/c 7 and 8
	: n/o 9 and 10

Underload Detection

Range	: 10 to 100% of Maximum Load Dial
Trip Delay	: 1 to 10 seconds



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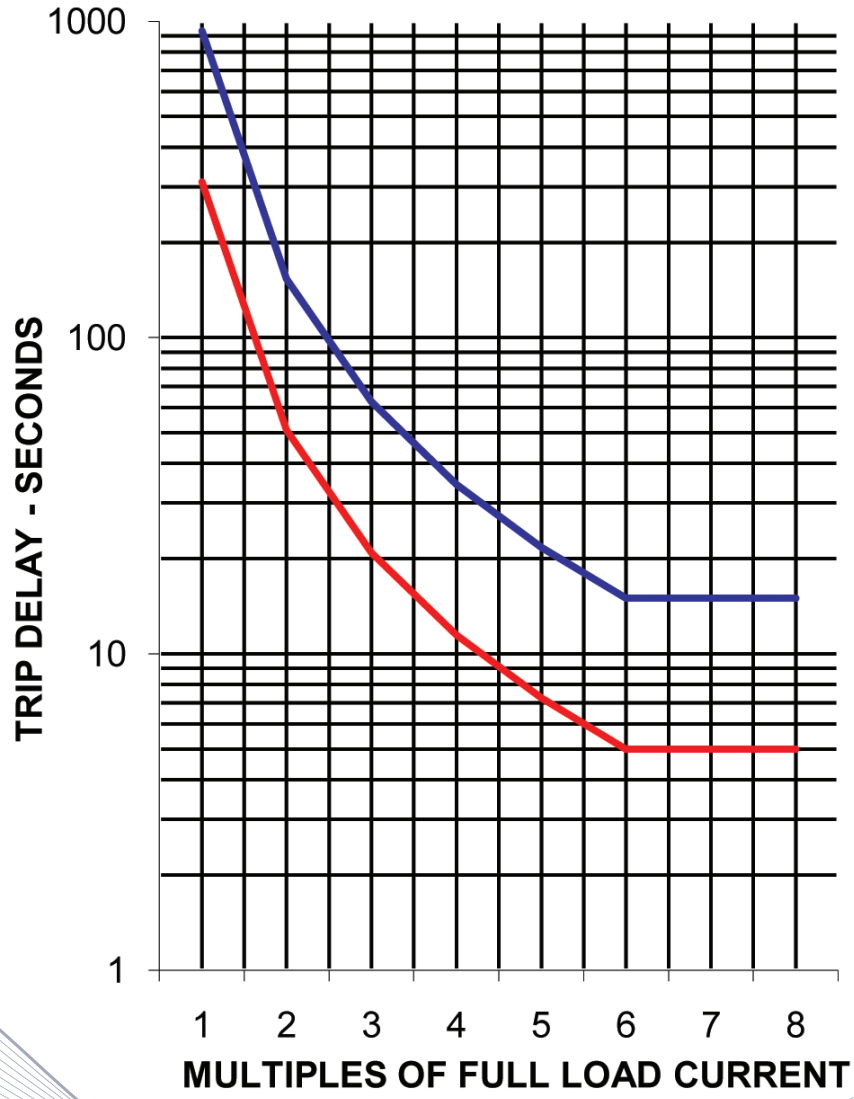


Specifications Contd.

Restart Timer

User-selectable range : *Manual only, 10 sec, 2 min, 10 min, 20 min, 30 min, 45 min, 1 hr, 3 hrs OR 6 hrs delay*

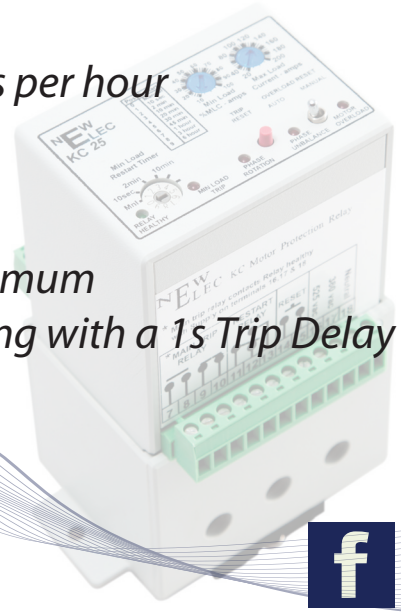
Example shown for a 15 sec curve selection : *T reset = Curve [2.33 (35,49 x 4) 15 log (100/70)] - Motor Stand-still*

Auto Reset Limiter

Auto Reset limited to only 3 times per hour

Running Stall Protection

Detection Level : *300% of Maximum Load Dial Setting with a 1s Trip Delay*



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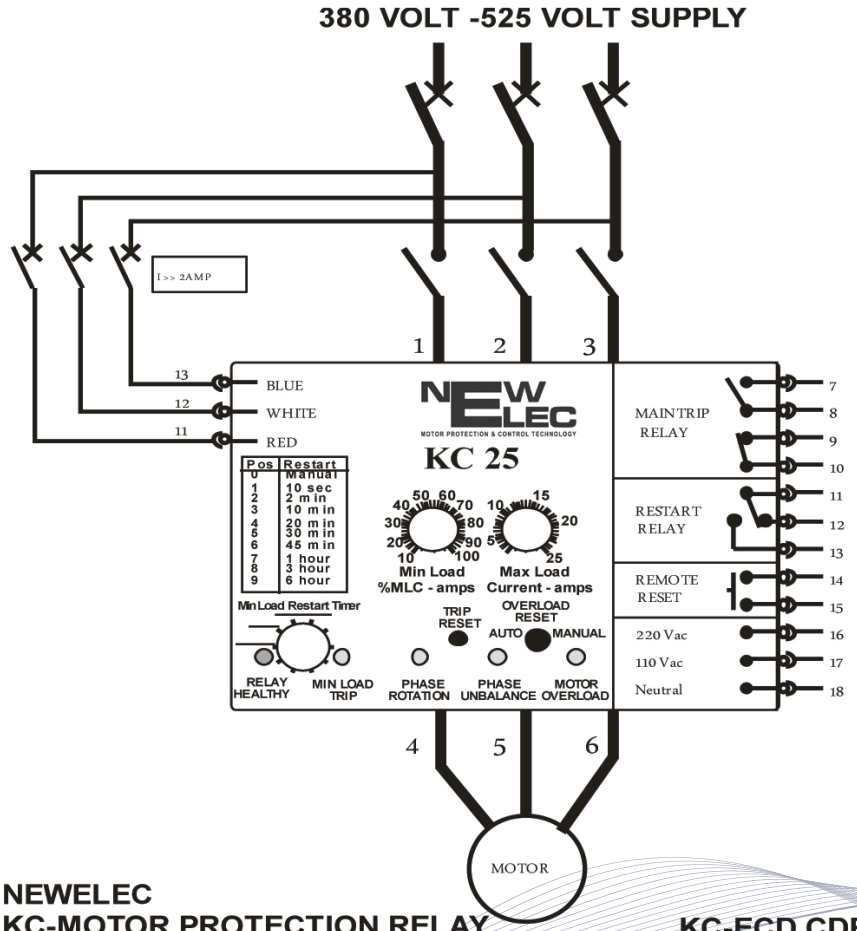
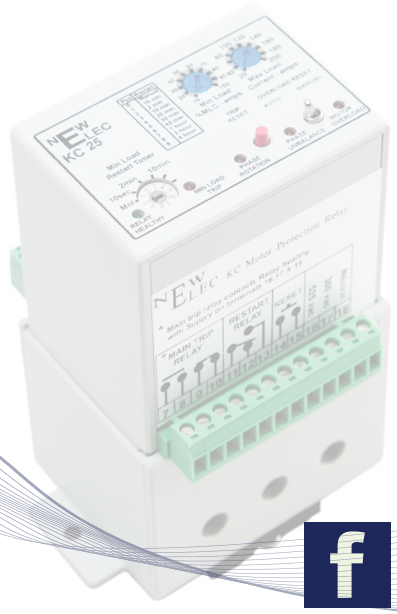
Electrical Connection Diagram



NEWELEC
KC-MOTOR PROTECTION RELAY

KC-ECD.CDR



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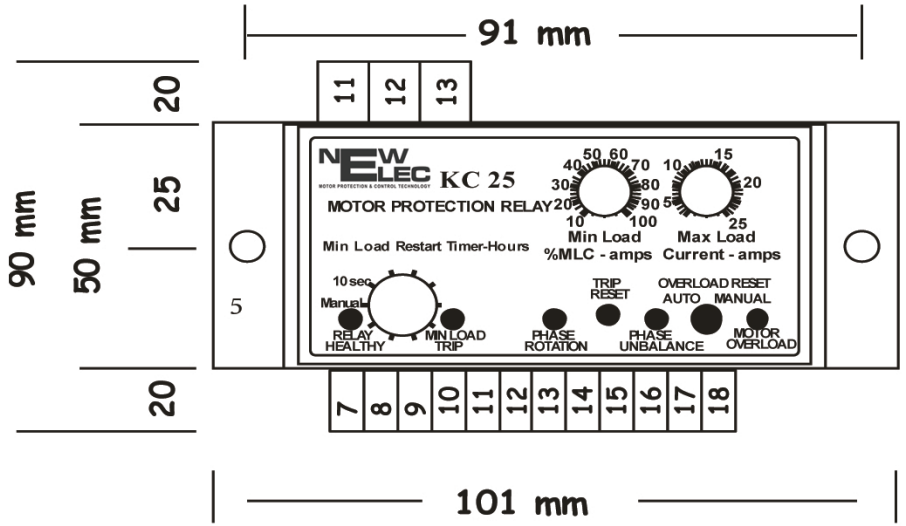
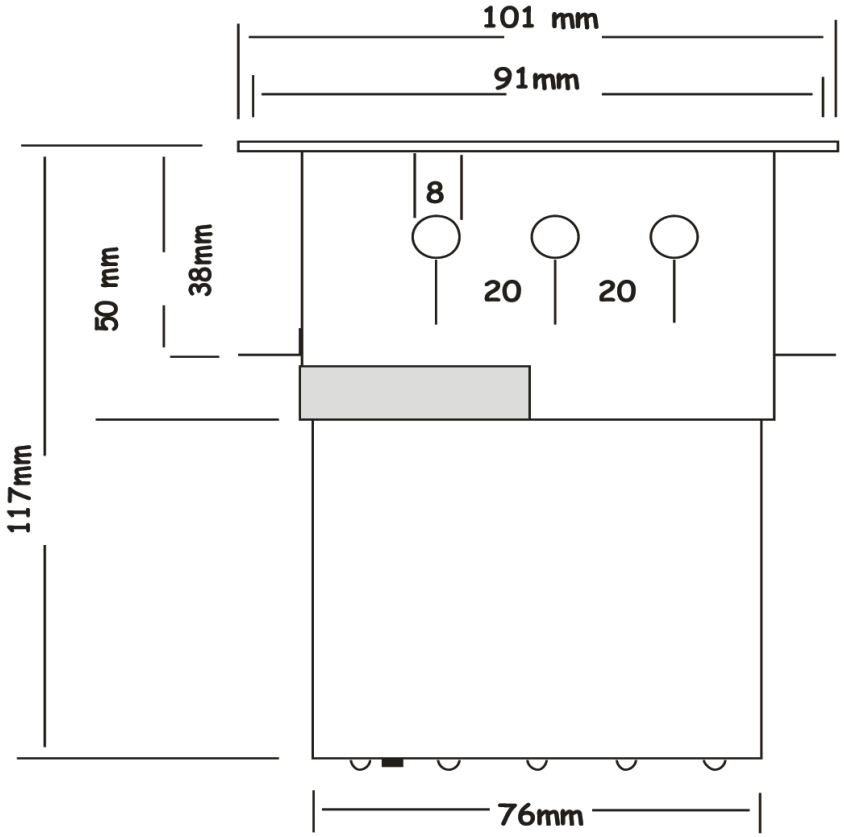
Dimensional Diagram



KC-DIM.CDR

NEWELEC KC
MOTOR PROTECTION RELAY



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Ordering Information

Model or relay type	Current setting range	Interposing secondary current transformer ratio where required
KC 1	0,1 to 1 Amp	Not required
KC 5	0,5 to 5 Amp	Not required
KC 10	1 to 10 Amp	Not required
KC 25	2,5 to 25 Amp	Not required
KC 50	5 to 50 Amp	50:5 Class 12,5 VA
KC 100	10 to 100 Amp	100:5 Class 12,5 VA
KC 200	25 to 200 Amp	200:5 Class 12,5 VA

Example 1

Protection for 3kW 380V three-phase motor
Motor full load = 6,5A
Suggestion: KC10 / 380V

Example 2

Protection for 132kW 525V 4-pole, three-phase motor
Motor full load = 175A
Suggestion: KC200 / 525 / 200:5

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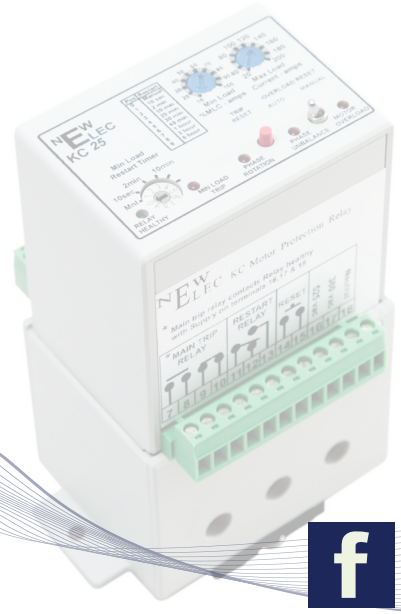
We provide a 1 year renewable guarantee

We repair products out of guarantee for 50% of their list price and renew the guarantee

Local support



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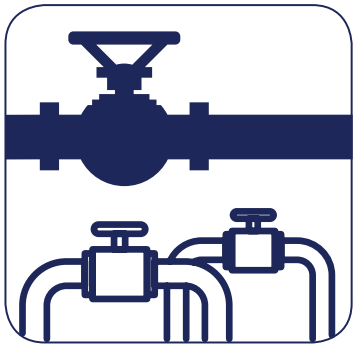
Applications particularly well suited for use in conjunction with the NewElec range of electronic motor protection relays.

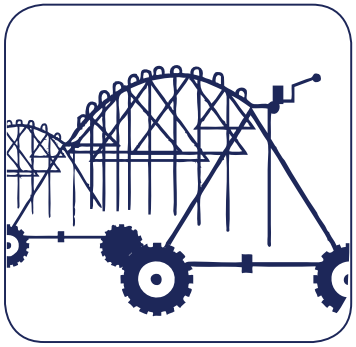
Mining



Water Affairs

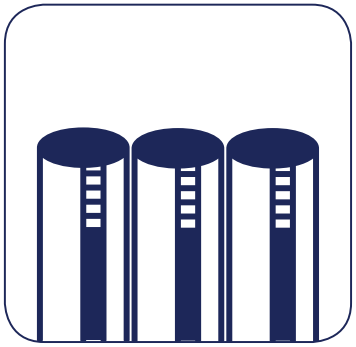
Petro Chemical

Refineries



Agriculture

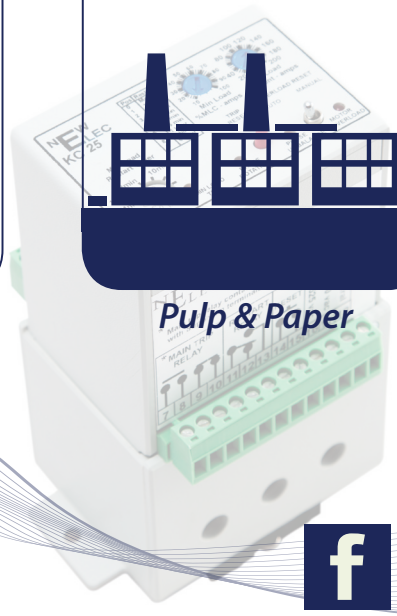
Material Handling



Mills

Cable Theft Detection

Pulp & Paper



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